ICIRA 2019 will be held on 8th-11th August in Shenyang, China. The conference venue is Shenyang Northeast Hotel (东北大厦). A whole-day registration and the poster sessions of accepted papers are arranged on 8th. Plenary talks, invited keynotes, oral presentations of accepted papers are arranged on 9th-10th. The joint ICIRA-CCRS (中国机器人年会) event is arranged on 11th (only applicable for those who have registered for the CCRS 2019)

A total of 6 plenary talks, 31 invited keynotes, 44 oral sessions and 160 poster presentations are arranged in the technical sessions.
The sessions with keynote talks are highlighted in red.

8th August

08:30-23:30	Conference Registration (Location: Atrium on the ground floor, 1 楼大堂)
11:00-13:00	Buffet Lunch
13:00-15:00	Refreshment and Poster Session 1 & 2 (Location: Longfeng Hall on 2nd floor, 2 楼隆奉厅)
15:00-17:00	Refreshment and Poster Session 3 & 4 (Location: Longfeng Hall on 2nd floor, 2 楼隆奉厅)
18:00-	Social Reception

9th August

07:00-08:30	Conference Registration (Location: Atrium on the ground floor, 1 楼大堂)							
08:30-09:00	Opening Ceremony (Location: Main hall on the 3rd floor, 3 楼东北会堂)							
09:00-09:45	Plenary Talk 1: Prof. I-Ming Chen Intelligent Robots and Hidden Champions (Location: Main hall on the 3rd floor, 3 楼东北会堂)							
09:45-10:30	Plenary Talk 2: Prof. Etienne Burdet Interaction Control in Humans and with Robots (Location: Main hall on the 3rd floor, 3 楼东北会堂)							
10:30-11:00	Refreshment							
11:00-12:30 Keynotes	Grouped Sessions (30mins for each keynote+15mins for each oral presentation in every session)							
& Oral	FrA1	FrA2	FrA3	FrA4	FrA5	FrA6	FrA7	FrA8

presentations	**Parallel robotics** Longfeng Hall A on 2nd floor (2 楼隆奉 A 厅)	**Wearable and assistive devices and robots for healthcare** Longfeng Hall B on 2nd floor (2 楼隆奉 B 厅)	**Swarm intelligence and multi-robot cooperation** No. 8 Meeting Room on 5th floor (5 楼第八会议室)	**Compliant manipulation learning and control for lightweight robot** No. 9 Meeting Room on 6th floor (6 楼第九会议室)	**Modular robots and other mechatronic systems** No. 6 Meeting Room on 3rd floor (3 楼第六会议室)	**Robotic technology for deep space exploration** No. 7 Meeting Room on 3rd floor (3 楼第七会议室)	**Unmanned underwater vehicles** Activity Room on 5th floor (5 楼活动室)	**Robotic grasping and manipulation with incomplete information and strong disturbance** No. 2 Meeting Room on 3rd floor (3 楼第二会议室)
12:30-14:00	Buffet Lunch							
14:00-14:45	Plenary Talk 3: Prof. Fumihito Arai Innovation of Robots with Bionic Design (Location: Main hall on the 3rd floor, 3 楼东北会堂)							
15:00-16:30	Grouped Sessions							

Keynotes & Oral presentations	(30mins for each keynote+15mins for each oral presentation in every session)							
	FrB1 **Fuzzy Modelling for automation, control, and robotics** Longfeng Hall A on 2nd floor (2 楼隆奉 A 厅)	FrB2 **Computational intelligence inspired robot navigation and SLAM** Longfeng Hall B on 2nd floor (2 楼隆奉 B 厅)	FrB3 **Wearable sensing based limb motor function rehabilitation** No. 8 Meeting Room on 5th floor (5 楼第八会议室)	FrB4 **Autonomous control of unmanned aircraft systems** No. 9 Meeting Room on 6th floor (6 楼第九会议室)	FrB5 **Marine Bio-inspired robotics and soft robotics: materials, mechanisms, modeling, and control** No. 6 Meeting Room on 3rd floor (3 楼第六会议室)	FrB6 **Human centered robotics** No. 7 Meeting Room on 3rd floor (3 楼第七会议室)	FrB7 **Bio-inspired wall climbing robot** Activity Room on 5th floor (5 楼活动室)	FrB8 **Robot intelligence technologies and system integration** No. 2 Meeting Room on 3rd floor (3 楼第二会议室)
16:30-16:45	Refreshment							
16:45-18:30	Grouped Sessions							

Keynotes & Oral presentations	(30mins for each keynote+15mins for each oral presentation in every session)							
	FrC1 **Swarm intelligence unmanned system** Longfeng Hall A on 2nd floor (2 楼隆奉 A 厅)	FrC2 **Medical robot** Longfeng Hall B on 2nd floor (2 楼隆奉 B 厅)	FrC3 **Soft locomotion robot** No. 8 Meeting Room on 5th floor (5 楼第八会议室)	FrC4 **Robotics for cell manipulation and characterization** No. 9 Meeting Room on 6th floor (6 楼第九会议室)	FrC5 **Underwater acoustic and optical signal processing for environmental cognition** No. 6 Meeting Room on 3rd floor (3 楼第六会议室)	FrC6 **Signal processing and underwater bionic robots** No. 7 Meeting Room on 3rd floor (3 楼第七会议室)	FrC7 **Human biomechanics and human-centered robotics** Activity Room on 5th floor (5 楼活动室)	FrC8 **Intelligent robots for environment detection or fine manipulation** No. 2 Meeting Room on 3rd floor (3 楼第二会议室)
18:30-20:00	Buffet Dinner							
20:00-21:00	Recruitment Seminar for Talent Acquisition - Shenyang Institute of Automation, Chinese Academy of Sciences (Location: Longfeng Hall on 2nd floor, 2 楼隆奉厅)							

10th August

07:00-09:00	Conference Registration (Location: Atrium on the ground floor, 1 楼大堂)							
09:00-09:45	Plenary Talk 4: Prof. Huayong Yang The Development of Robotic Technologies Applied to the Mobile Construction Machinery (Location: Main hall on the 3rd floor, 3 楼东北会堂)							
09:45-10:30	Plenary Talk 5: Prof. Yaochu Jin Morphogenetic Self-organization of Swarm Robots (Location: Main hall on the 3rd floor, 3 楼东北会堂)							
10:30-11:00	Refreshment							
11:00-12:30 Keynotes & Oral presentations	Grouped Sessions (30mins for each keynote+15mins for each oral presentation in every session)							
	SaA1 **Field robots** Longfeng Hall A on 2nd	SaA2 **Man-machine interactions**	SaA3 **Navigation/Localization**	SaA4 **Nonlinear systems and**	SaA5 **Human-robot interaction**	SaA6 **Piezoelectric actuators and**	SaA7 **Teleoperation robot**	SaA8 **Fault detection, testing and**

	floor (2 楼隆奉 A 厅)	Longfeng Hall B on 2nd floor (2 楼隆奉 B 厅)	No. 8 Meeting Room on 5th floor (5 楼第八会议室)	**control** No. 9 Meeting Room on 6th floor (6 楼第九会议室)	No. 6 Meeting Room on 3rd floor (3 楼第六会议室)	**micro-nano manipulations** No. 7 Meeting Room on 3rd floor (3 楼第七会议室)	Activity Room on 5th floor (5 楼活动室)	**diagnosis** No. 2 Meeting Room on 3rd floor (3 楼第二会议室)
12:30-14:00	Buffet Lunch							
14:00-14:45	Plenary Talk 6: Prof. Shugen Ma Rethinking Robotics R&D for Real World and Environment-adaptive Robots (Location: Main hall on the 3rd floor, 3 楼东北会堂)							
15:00-16:30 Keynotes & Oral presentations	Grouped Sessions (30mins for each keynote+15mins for each oral presentation in every session)							
	SaB1 **Robot intelligence, learning and linguistics**	SaB2 **Robot legged locomotion** No. 9 Meeting Room on 6th floor	SaB3 **Compliant mechanisms** No. 6 Meeting Room on 3rd	SaB4 **Computer integrated manufacturing** No. 7 Meeting Room on 3rd	SaB5 **Collective and social robots** Activity Room on 5th floor (5 楼	SaB6 **Human-robot collaboration** No. 2 Meeting Room on 3rd floor		

	No. 8 Meeting Room on 5th floor (5 楼第八会议室)	(6 楼第九会议室)	floor (3 楼第六会议室)	floor (3 楼第七会议室)	活动室)	(3 楼第二会议室)
16:30-16:45	Refreshment					
16:45-18:30 Keynotes & Oral presentations	Grouped Sessions (30mins for each keynote+15mins for each oral presentation in every session)					
	SaC1 **Development of high-performance joint drive for robots** No. 8 Meeting Room on 5th floor (5 楼第八会议室)	SaC2 **Mobile robots and intelligent autonomous systems** No. 9 Meeting Room on 6th floor (6 楼第九会议室)	SaC3 **Continuum mechanisms and robots** No. 6 Meeting Room on 3rd floor (3 楼第六会议室)	SaC4 **Robot mechanism and design** No. 7 Meeting Room on 3rd floor (3 楼第七会议室)	SaC5 **Visual and motional learning in robotics** Activity Room on 5th floor (5 楼活动室)	SaC6 **Robot vision and scene understanding** No. 2 Meeting Room on 3rd floor (3 楼第二会议室)
19:00-	Closing Ceremony/Conference Banquet (Location: Main hall on the 3rd floor, 3 楼东北会堂)					

11th August

<table>
<tr><td>09:00-18:30</td><td colspan="5">Joint ICIRA-CCRS Events (only applicable for those who have jointly registered for CCRS 2019)</td></tr>
<tr><td>09:00-10:30</td><td colspan="5">Joint Plenary Talk 1: Prof. Yangsheng Xu
Joint Plenary Talk 2: Prof. Jie Chen
(Location: Main hall on the 3rd floor, 3 楼东北会堂)</td></tr>
<tr><td>10:30-11:00</td><td colspan="5">Refreshment</td></tr>
<tr><td rowspan="2">11:00-12:10</td><td colspan="2">Joint Keynote 1: Dr. Min Tan
(Location: Main hall on the 3rd floor, 3 楼东北会堂)</td><td colspan="3">Joint Keynote 2: Prof. Xilun Ding
(Location: Longfeng Hall on 2nd floor, 2 楼隆奉厅)</td></tr>
<tr><td colspan="2">Joint Keynote 3: Prof. Tiejun Huang
(Location: Main hall on the 3rd floor, 3 楼东北会堂)</td><td colspan="3">Joint Keynote 4: Prof. Xianmin Zhang
(Location: Longfeng Hall on 2nd floor, 2 楼隆奉厅)</td></tr>
<tr><td>12:10-14:00</td><td colspan="5">Buffet Lunch</td></tr>
<tr><td>14:00-15:30</td><td colspan="5">Guest Forums: Prof. Han Ding, Prof. Huayong Yang, Dr. Haibin Yu, Prof. Hong Liu, Prof. Xiangyang Zhu
(Location: Main hall on the 3rd floor, 3 楼东北会堂)</td></tr>
<tr><td rowspan="2">15:30-18:20</td><td colspan="5">Forums on Subjects</td></tr>
<tr><td>Nano Robot</td><td>Medical Robot</td><td>Bionic Robot</td><td>Swarm Robot</td><td>Industrial Robot</td></tr>
</table>

Plenary Talks at ICIRA 2019

(August 9th Friday, Main Hall on the 3rd floor)

Plenary Talk 1 August 9th (Fri) 09:00-09:45

Intelligent Robots and Hidden Champions

Prof. I-Ming Chen

Nanyang Technological University, Singapore

Plenary Talk 2 August 9th (Fri) 09:45-10:30

Interaction Control in Humans and with Robots

Prof. Etienne Burdet

Imperial College London, UK

Plenary Talk 3 August 9th (Fri) 14:00-14:45

Innovation of Robots with Bionic Design

Prof. Fumihito Arai

Nagoya University, Japan

Plenary Talks at ICIRA 2019

(August 10th Saturday, Main Hall on the 3rd floor)

Plenary Talk 4 August 10th (Sat) 09:00-09:45

The Development of Robotic Technologies Applied to the Mobile Construction Machinery

Prof. Huayong Yang

Zhejiang University, China

Plenary Talk 5 August 10th (Sat) 09:45-10:30

Morphogenetic Self-organization of Swarm Robots

Prof. Yaochu Jin

University of Surrey, UK

Plenary Talk 6 August 10th (Sat) 14:00-14:45

Rethinking Robotics R&D for Real World and Environment-adaptive Robots

Prof. Shugen Ma

Ritsumeikan University, Japan

Oral Sessions & Invited Talks at ICIRA 2019

(August 9th Friday, 11:00-12:30)

FrA1: Parallel robotics (53, 112, 404, 471)

Venue: Longfeng Hall A on 2nd floor (2楼隆奉A厅)

Chairs: Prof. Haitao Liu, Prof. Huafeng Ding

Keynote: Cable-driven Parallel Robots and Industrial Applications

Invited Speaker: Dr Stéphane Caro, CNRS, France

FrA1-1 Structure design and kinematic analysis of a partially-decoupled 3T1R parallel manipulator

Ke Xu, Haitao Liu, Huiping Shen, Tingli Yang

FrA1-2 A New Four-limb Parallel Sch oenflies Motion Generator with End-effector Full-Circle Rotation via Planetary Gear Train

Guanglei Wu, Zirong Lin, Huiping Shen, Wenkang Zhao, Sida Zhang

FrA1-3 Design and Kinematic Analysis on A Novel Serial-Parallel Hybrid Leg for Quadruped Robot

Jianzhuang Zhao, Kai Liu, Fei Zhao, Zheng Sun

FrA1-4 A Novel 5-DOF Hybrid Robot without Singularity Configurations

Xin Tian, Tieshi Zhao, Erwei Li

FrA2: Wearable and assistive devices and robots for healthcare (56, 77, 105, 251)

Venue: Longfeng Hall B on 2nd floor (2楼隆奉B厅)

Chairs: Dr. Jindong Liu, Dr. Benny Lo

Keynote: Modular and Soft E-Tattoos for Mobile Biometrics Sensing

Invited Speaker: Dr Nanshu Lu, The University of Texas at Austin, USA

FrA2-1 A Preliminary Study on Surface Electromyography Signal Analysis for Motion Characterization during Catheterization

Tao Zhou, Olatunji Omisore, Wenjing Du, Wenke Duan, Yuan Zhang, Lei Wang

FrA2-2 Design and Control of a Novel Series Elastic Actuator for Knee Exoskeleton

Chenglong Qian, Aibin Zhu, Jiyuan Song, Huang Shen, Xiaodong Zhang, Guangzhong Cao

FrA2-3 Comparison of Different Schemes for Motion Control of Pneumatic Artificial Muscle using Fast Switching Valve

Shenglong Xie, Binrui Wang, Dijian Chen

FrA2-4 Recognition of Pes Cavus Foot using Smart Insole: A Pilot Study

Zhanyong Mei, Kamen Ivanov, Ludwig Lubich, Lei Wang

FrA3: Swarm intelligence and multi-robot cooperation (12, 26, 117, 125, 517)

Venue: No. 8 Meeting Room on 5th floor (5楼第八会议室)

Chairs: Xiaodong Yi, Prof. Haitao Zhang, Dr. Yunlong Wu

Keynote: From Biological Swarm Intelligence to Cooperation of Cross-Domain Unmanned Systems

Invited Speaker: Prof Haitao Zhang, Huazhong University of Science and Technology, China

FrA3-1 Multi-robot Collaborative Assembly Research for 3C Manufacturing--Taking Server Motherboard Assembly Task as an Example

Jinyu Xu, Yanpu Lei, Jia-Wei Luo, Yue Wu, Hai-Tao Zhang

FrA3-2 Multiagent Reinforcement Learning for Swarm Confrontation Environments

Guanyu Zhang, Yuan Li, Xinhai Xu, Huadong Dai

FrA3-3 Distributed Adaptive Formation Control of Team of Aerial Robot Swarms in Cluttered Environments

Zhipeng Xie, Youlian Long, Hui Cheng

FrA3-4 Resource planning for UAV swarms based on NSGA-II

Jinge Li , Yuan Yao, Gang Yang, Xingshe Zhou

FrA3-5 A Semantic Segmentation based Lidar SLAM system towards Dynamic Environments

Jian Rui, Su Weihua, Ruihao LI, Zhang Shiyue, Jiacheng Wei, Boyang Li, Ruqiang Huang

FrA4: Compliant manipulation learning and control for lightweight robot (323, 358, 376, 397)

Venue: No. 9 Meeting Room on 6th floor (6楼第九会议室)

Chairs: Chin-Yin Chen, Dr. Yuwang Liu

Keynote: Creative Design and Reconfiguration Analysis of Multi-mode Parallel Mechanisms

Invited Speaker: Dr Xianwen Kong, Heriot-Watt University, UK

FrA4-1 A Nonsqueezing Torque Distribution Method for an Omnidirectional Mobile Robot with Powered Castor Wheels

Wenji Jia, Guilin Yang, Chongchong Wang, Qiang Liu, Zaojun Fang, Chin-Yin Chen

FrA4-2 A Two-Step Self-Calibration Method with Portable Measurement Devices for Industrial Robots Based on POE Formula

Lefeng Gu, Guilin Yang, Zaojun Fang, Wenjun Shen, Tianjiang Zheng, Chin-Yin Chen, Chi Zhang

FrA4-3 Obstacle Avoidance of a redundant robot using virtual force field and null space projection

Yiming Jiang, Chenguang Yang, Zhaojie Ju, Jinguo Liu

FrA4-4 Modeling of Torque Ripple for Integrated Robotic Joint

Yusheng Liao, Chi Zhang, Chongchong Wang, Chin-Yin Chen, Qiang Xin, Silu Chen

FrA5: Modular robots and other mechatronic systems (190, 271, 329, 485)

Venue: No. 6 Meeting Room on 3rd floor (3 楼第六会议室)

Chairs: Prof. Yisheng Guan, Prof. Zhuming Bi, Prof. Shugen Ma

Keynote: M3 (Musculoskeletal Mechanics and Mechatronics) Engineering: Biomechanical Engineering from Human and for Human

Invited Speaker: Prof Lei Ren, The University of Manchester, UK

FrA5-1 A bio-inspired self-repair approach for modular self-reconfigurable robots

Dongyang Bie, Yu Zhang, Xingang Zhao, Yanhe Zhu

FrA5-2 Reconfigurable design and structure optimization of SCARA

Zhao Chun, Yanjie Wang, Hao Muyu, Luo Minzhou

FrA5-3 Modular Design of 7-DOF Cable-Driven Humanoid Arms

Hao Jiang, Tao Zhang, Cai Xiao, Jian Li, Yisheng Guan

FrA5-4 Design and Locomotion Analysis of a Retractable Snake-like Robot Based on 2-RRU/URR Parallel Module

Hui Bian, Lanlan Sun, Lei Yunfei

FrA6: Robotic technology for deep space exploration(22, 71, 368, 406, 412, 417)

Venue: No. 7 Meeting Room on 3rd floor (3楼第七会议室)

Chairs: Dr. Yaobing Wang, Dr. Lei Chen

FrA6-1 Kinematic Characteristics Analysis of a Double-ring Truss Deployable Antenna Mechanism

Bo Han, Yundou Xu, Jiantao Yao, Dong Zheng, Yongsheng Zhao

FrA6-2 Conceptual Design of Ejection, Aerostat and Rolling Group Detectors

Qunzhi Li, Chao Ma, Wangjun Zhang, Han Wang, Zhihui Zhao

FrA6-3 A Self-calibration Method of Lander Manipulator for Deep Space Exploration Mission

Qingxuan Jia, Shao Wen, Gang Chen, Yifan Wang, Lanpu Li

FrA6-4 A Hybrid Deep Reinforcement Learning Algorithm for Intelligent Manipulation

Chao Ma, Jianfei Li, Jie Bai, Yaobing Wang, Bin Liu, Jing Sun

FrA6-5 Virtual-sensor-based Planetary Soil Classification with Legged Robots

Shuang Wu, Lei Chen, Bin Liu, Chu Wang, Qingqing Wei, Yaobing Wang

FrA6-6 Virtual force senor based on PSO-BP neural network for legged robots in planetary exploration

Chu Wang, Shuang Wu, Lei Chen, Bin Liu, Qingqing Wei, Yaobing Wang

FrA7: Unmanned underwater vehicles (208, 213, 259, 272, 370, 375)

Venue: Activity Room on 5th floor (5楼活动室)

Chairs: Prof. Daqi Zhu, Prof. Xianbo Xiang

FrA7-1 Path Planning For Swarm AUV Visiting Communication Node

Chao Geng, Guannan Li, Hongli Xu

FrA7-2 A dynamic tracking control for the 4500m-Human Occupied Vehicle

Wenyang Gan, Daqi Zhu, Zhen Hu

FrA7-3 Development of A Full Ocean Depth Hydraulic Manipulator System

Yanzhuang Chen, Qifeng Zhang, Xisheng Feng, Liangqing Huo, Qiyan Tian, Linsen Du, Yunfei Bai, Cong Wang

FrA7-4 Thruster fault identification for autonomous underwater vehicle based on time-domain energy and time-frequency entropy of fusion signal

Baoji Yin, Xi Lin, Wenxian Tang, Zhikun Jin

FrA7-5 Design and Implementation of Monitoring System for Deep Sea Ore Sampling Machine

Donglei Dong, Xianbo Xiang, Jinrong Zheng, Qin Zhang

FrA7-6 An Automated Launch and Recovery System for USVs based on the Pneumatic Ejection Mechanism

Shuanghua Zheng, Yang Yang, Yan Peng, Jianxiang Cui, Junjie Chen, Xingang Jiang, Yonghui Feng

FrA8: Robotic grasping and manipulation with incomplete information and strong disturbance (218,

285, 379, 381, 400, 421）

Venue: No. 2 Meeting Room on 3rd floor（3楼第二会议室）

Chairs: Prof. Yuan Yuan, Dr. Shuguang Li, Dr. Chong Sun

FrA8-1 Development of Bolt Screwing Tool Based on Pneumatic Slip Ring

Qi Zhang, Xie Zongwu, Yechao Liu, Hong Liu

FrA8-2 Deep Grasping Prediction with Antipodal Loss for Dual Arm Manipulators

Dong Yunlong, Xiangdi Liu, Bidan Huang, Chunlin Ji, Jianfeng Xu, Han Ding, Ye Yuan

FrA8-3 Artificial Neural Network based Tactile Sensing Unit for Robotic Hand

Dong Kyo Jeong, Dong-Eon Kim, ailing Li, Jang-Myung Lee

FrA8-4 Bounded Recursive Optimization Approach for Pose Estimation in Robotic Visual Servoing

Yuchen Zhang, Bo Chen, Li Yu, Haiyu Song

FrA8-5 The Energy Management for the impact/vibration control in the Non-cooperative Space Target Capture

Lisheng Deng, FANG Qun, Cheng-xi WANG, SHI Hao, Ming-Xiao WANG, Wenya Wan

FrA8-6 Force Analysis and Experiment of Variable Stiffness Soft Actuator Based on Particle Jamming

Fengyou Jiang, Fengyu Xu, Hongliang Yu, Yurong Song, Xudong Cao

Oral Sessions & Invited Talks at ICIRA 2019

(August 9th Friday, 15:00-16:30)

FrB1: Fuzzy Modelling for automation, control, and robotics (61,164,503)

Venue: Longfeng Hall A on 2nd floor (2楼隆奉A厅)

Chairs: Dr. Longzhi Yang, Dr. Chengyuan Chen, Dr. Yanpeng Qu, Dr. Tianhua Chen, Dr. Jie Li

Keynote: Reconfigurable Aerospace Systems

Invited Speaker: Prof Fengfeng Xi, Ryerson University, Canada

FrB1-1 Variable Universe Fuzzy Control for Direct Yaw Moment of Distributed Drive Electric Vehicle

Sen Cao, Yaping Wang, Haoran Jia, Zheng Zhang

FrB1-2 Force control polishing device based on fuzzy adaptive impedance control

Pengfei Chen, Huan Zhao, Xin Yan, Han Ding

FrB1-3 A Study of TSK Inference Approaches for Control Problems

Jie Li, Fei Chao, Longzhi Yang

FrB2: Computational intelligence inspired robot navigation and SLAM (19,320,374,463)

Venue: Longfeng Hall B on 2nd floor (2楼隆奉B厅)

Chairs: Prof. Naoyuki Kubota, Dr. Yuichiro Toda, Dr.

Weihong Chin, Dr. Jin Seok Woo

Keynote: Learning Robot Localisation, Navigation and Autonomy from Vision

Invited Speaker: Dr Sen Wang, Heriot-Watt University, UK

FrB2-1 Improved neural network 3D space obstacle avoidance algorithm for mobile robot

Yuchuang Tong, Jinguo Liu, Yuwang Liu, Zhaojie Ju

FrB2-2 An Improved A Algorithm Based on Loop Iterative Optimization in Mobile Robot Path Planning

Gang Peng, Lu Hu, Wei Zheng, Shan Liang Chen

FrB2-3 Indoor Environment RGB-DT Mapping for Security Mobile Robots

Lijun Zhao, Yu Liu, Xinkai Jiang, Ke Wang, Zigeng Zhou

FrB2-4 Navigate to Remember: A Declarative Memory Model for Incremental Semantic Mapping

Wei Hong Chin, Naoyuki Kubota, Zhaojie Ju, Honghai Liu

FrB3: Wearable sensing based limb motor function rehabilitation (258, 348, 468, 476)

Venue: No. 8 Meeting Room on 5th floor (5楼第八会议室)

Chairs: Dr. Yinfeng Fang, Dr. Xiaofei Ji, Prof. Gongfa Li, Dr. Dalin Zhou

Keynote: Assistive exoskeletons for motion assistance: mechanism design, motion intention detection and control

Invited Speaker: Dr Shaoping Bai, Aalborg University, Denmark

FrB3-1 Design of a Sensor Insole for Gait Analysis

Kamen Ivanov, Zhanyong Mei, Ludwig Lubich, Nan Guo, Deng Xile, Zhichun Zhao, Olatunji Omisore, Derek Ho, Lei Wang

FrB3-2 Multiple Features Fusion System for Motion Recognition

Jiang Hua, Zhaojie Ju, Disi Chen, Dalin Zhou, Haoyi Zhao, Du Jiang, Gongfa Li

FrB3-3 Classification Methods of sEMG Through Weighted Representation-based K-nearest Neighbor

Shuai Pan, Jing Jie, Kairui Liu, Jinrong Li, Hui Zheng

FrB3-4 A Soft Capacitive Wearable Sensing System for Lower-limb Motion Monitoring

Xingxing Ma, Jiajie Guo, Kok-Meng Lee, Luye Yang, Minghui Chen

FrB4: Autonomous control of unmanned aircraft systems (45, 46, 134, 427)

Venue: No. 9 Meeting Room on 6th floor (6楼第九会议室)

Chairs: Dr. Yifeng Niu, Dr. Yirui Cong

Keynote: The Motion Control of Robotic Systems by Using Anti-Disturbance Control Method

Invited Speaker: Prof Yuan Yuan, Northwestern Polytechnical Univeristy, China

FrB4-1 Reorientation Control for A Microsatellite with Pointing and Angular Velocity Constraints

Zhenxin Feng, Jianguo Guo, Zhou Jun

FrB4-2 Real-Time Trajectory Replanning for Quadrotor using OctoMap and Uniform B-splines

Jia Hu, Zhaowei Ma, Yifeng Niu, Wenli Tian, Wenchen Yao

FrB4-3 Analysis of Disturbance Effect of a Cable on Underwater Vehicle

Zhandong Li, Jingkui Li, Jianguo Tao, Wei Wang, Yang Luo

FrB4-4 Bionic Design and Attitude Control Measurement in a Double Flapping-wing Micro Air Vehicle

Xuedong Zhang, Huichao Deng, Shengjie Xiao, Lili Yang, Xilun Ding

FrB5: Marine Bio-inspired robotics and soft robotics: materials, mechanisms, modeling, and control (140, 392, 519)

Venue: No. 6 Meeting Room on 3rd floor (3楼第六会议室)

Chairs: Dr. Li Wen, Prof. Junzhi Yu, Dr. Tiefeng Li, Dr. Rongjie Kang

Keynote: Biomimetics on gecko locomotion: From Biology to Engineering

Invited Speaker: Prof Zhendong Dai, Nanjing University of Aeronautics and Astronautics, China

FrB5-1 A Novel Dual-drive Soft Pneumatic Actuator with the Improved Output Force

Shoufeng Liu, Fujun Wang, Guanwei Zhang, Zhu Liu, Wei Zhang, Yanling Tian, Dawei Zhang

FrB5-2 A gecko-inspired robot employs scaling footpads to facilitate stable attachment

Zhongyuan Wang, Kebo Deng, Qingyao Bian, Zhendong Dai

FrB5-3 Measurement Method of Underwater Target Based on Binocular Vision

Xiufen Ye, Hao Chen

FrB6: Human centered robotics (181, 200, 202, 228, 336)

Venue: No. 7 Meeting Room on 3rd floor (3 楼第七会议室)

Chairs: Prof. Chengdong Wu, Prof. Lijin Fang, Prof. Jinhua She, Prof. Xin Chen, Asso. Prof. Fei Wang, Asso. Prof. Zhentao Liu

FrB6-1 Deep learning based noise level classification of Medical images

Yifei Zhang, Chengdong Wu, Jianning Chi, Xiaosheng Yu

FrB6-2 Deep Learning Based Gesture Recognition and Its Application in Interactive Control of Intelligent Wheelchair

Xingqun Zhou, Fei Wang, Jianhui Wang, Yufan Wang, yan junlang, guilin zhou

FrB6-3 Cross-Subject EEG-Based Emotion Recognition with Deep Domain Confusion

Zhang Weiwei, Fei Wang, Wu Shichao, Xu Zongfeng, Jiang Yang, Zhang Yahui

FrB6-4 Development of Mixed Reality Robot Control System Based on HoloLens

Xuanmeng Sha, Zixi Jia, WeiDong Sun, Hao Yida, Xingang Xiao, Hanlu Hu

FrB6-5 Improvement of Mask-RCNN Object Segmentation Algorithm

Xin Wu, Wen Shiguang, Yuan-ai Xie

FrB7: Bio-inspired wall climbing robot (50, 102, 227, 255, 353)

Venue: Activity Room on 5th floor (5 楼活动室)

Chairs: Prof. Linsen Xu, Dr. Fengyu Xu

FrB7-1 Jinfu Liu, Linsen Xu, Shouqi Chen, Hong Xu, Gaoxin Cheng, Tao Li, Qingfeng Yang

Qi Zhang, Xie Zongwu, Yechao Liu, Hong Liu

FrB7-2 The Graspable Algorithm for a Wall-climbing Robot with Claws

Fanchang Meng, Yiquan Guo, Fengyu Xu, Guoping Jiang, Bei Wang

FrB7-3 A Novel Tracked Wall-Climbing Robot with Bio-Inspired Spine Feet

Yanwei Liu, SanWa Liu, Limeng Wang, Xuan Wu, Yan Li, Tao Mei

FrB7-4 A wall climbing robot arm capable of adapting to multiple contact wall surfaces

Shiyuan Bian, Yuliang Wei, Feng Xu, Min Tang, Deyi Kong

FrB7-5 Development of Control System with Double-closed Loop for a Multi-mode Wall-climbing robot

Hong Xu, Linsen Xu, Gaoxin Cheng, Shouqi Chen, Jinfu Liu

FrB8: Robot intelligence technologies and system integration (17, 187, 362, 364, 403, 415)

Venue: No. 2 Meeting Room on 3rd floor (3楼第二会议室)

Chairs: Dr. Yuichiro Toda, Dr. Xiang Li, Dr. Dalai Tang

FrB8-1 Method on Human Activity Recognition Based on Convolutional Neural Network

Zhang Haibin, Naoyuki Kubota

FrB8-2 A Web Based Security Monitoring and Information Management System for Nursing homes

Ying Li, Ying Xu, Lv Yi, Junchen Wang

FrB8-3 Region of Interest Growing Neural Gas for Real-time Point Cloud Processing

Yuichiro Toda, Xiang Li, Takayuki Matsuno, Mamoru Minami

FrB8-4 Detection of Divergence Point of the Optical Flow Vectors Considering to Gaze Point while Vehicle Cornering

Hiroyuki Masuta, Yusuke Nagai, Yuta Kumano, Tatsuo Motoyoshi, Kei Sawai, Takumi Tamamoto, Ken'ichi Koyanagi, Toru Oshima

FrB8-5 Automatic fiber detection and focus system from image frames.

Wei Quan, Haibing Zhang, Naoyuki Kubota

FrB8-6 Lifelog Generation Based on Informationally Structured Space

Dalai Tang, Naoyuki Kubota

Oral Sessions & Invited Talks at ICIRA 2019

(August 9th Friday, 16:45-18:30)

FrC1: Swarm intelligence unmanned system (15, 16, 31, 141, 148, 264, 310, 478)

Venue: Longfeng Hall A on 2nd floor (2楼隆奉A厅)

Chairs: Dr. Qi Dong, Dr. Feifei Gao

Keynote: New Insights into Bio-inspired Intelligence for Autonomous Robots with Their Applications

Invited Speaker: Dr Chaomin Luo, Mississippi State University, USA

FrC1-1 User Association and Power Allocation in UAV-based SWIPT System

Mei Yang, Fei Huang, Yongling Zeng, Yunzhen Wu, Chuanshuo Zhang

FrC1-2 Joint Location Selection and Supply Allocation for UAV Aided Disaster Response System

Nanxin Wang, Jingheng Zheng, Jihong Tong, Kai Zhang

FrC1-3 Energy Minimization for Rotary-Wing UAV Enabled WPCN

Fahui Wu, Dingcheng Yang, Lin Xiao

FrC1-4 An Efficient Image Quality Assessment Guidance Method for Unmanned Aerial Vehicle

Xin Guo, Xu Li, Lixin Li, Qi Dong

FrC1-5 Equal Gain Combining Based Sub-Optimum Posterior Noncoherent Fusion Rule for Wireless Sensor Networks

Fucheng Yang, Jie Song, Yilin Si, Lixin Li

FrC1-6 Secure Transmission Design for UAV-Based SWIPT Networks

Shidang Li, Chunguo Li, Hui Zhong

FrC1-7 Spectrum Sharing Scheme for Multi-UAVs Relay Network Based on Matching Theory

Jingmin Zhang, Xiaomin Liu, Lixin Li, Fucheng Yang, Qi Dong, Xiaokui Yue

FrC1-8 A Hybrid Multiagent Collision Avoidance Method for Formation Control

Zezhi Sui, Zhiqiang Pu, Jianqiang Yi, Tianyi Xiong

FrC2: Medical Robot (29, 79, 184, 312, 501)

Venue: Longfeng Hall B on 2nd floor (2楼隆奉B厅)

Chair: Dr. Yinfeng Fang

Keynote: Assitive Robot for Endovascular Catheterization

Invited Speaker: Dr Jindong Liu, Imperial College London, UK

FrC2-1 FES Proportional Tuning Based on sEMG

Yu Zhou, Jia Zeng, Kairu Li, Honghai Liu

FrC2-2 A Noninvasive Calibration-free and Model-free Surgical Robot for Automatic Fracture Reduction

Shijie Zhu, Yitong Chen, Yu Chen, Jiawei Sun, Zhe Zhao, Changping Hu, Gangtie Zheng

FrC2-3 Application of Haptic Virtual Fixtures on Hot-line Work Robot-assisted Manipulation

Yutao Chen, Jing Zhu, Min Xu, Hao Zhang, Xuming Tang, Erbao Dong

FrC2-4 Force Modeling of Tool-tissue Interaction Force during Suturing

Shuai Gao, Shijun Ji, Mei Feng, Qiumeng Li, Xiuquan Lu, Zhixue Ni, Yan Li

FrC2-5 Simulation Analysis of Trajectory Planning for Robot-Ass

WanRu Fei, Baosen Tan, Shaolong Kuang, Yubo Fan, Wenyong Liu

FrC3: Soft locomotion robot (309, 378, 420, 422, 458)

Venue: No. 8 Meeting Room on 5th floor (5楼第八会议室)

Chairs: Dr. Bo Li, Prof. Guimin Chen

Keynote: Design and control of soft robots

Invited Speaker: Prof Guoying Gu, Shanghai Jiao Tong University, China

FrC3-1 Design and Experimental Study of a New Flexible Driven Parallel Soft Massage Robot

Yanzhi Zhao, Hang Wei, Pengbo Li, Guoqing Li, Lizhe Qi, Hongnian Yu

FrC3-2 A vacuum-powered soft linear actuator strengthened by granular jamming

Yangqiao Lin, Jun Zou, Huayong Yang

FrC3-3 A Soft Robot for Ground Crawling: Design and Analysis

Yuxuan Lu, Fengyu Xu, Yudong Yang, Fanchang Meng

FrC3-4 Analysis and Application of the Bending Actuators Used in Soft Robotics

Wen Zhou, Jiahuan Chen, Xudong Wang, Jiadong Hu, Yiqing Li

FrC3-5 An Active Steering Soft Robot for Small-bore T-branch Pipeline

Tianbo Li, Yang Yang, Yonggan Liu, Yongjian Zhao, Yan Peng, Jun Ke, Yuyi Zhai

FrC4: Robotics for cell manipulation and characterization (301, 401, 428, 439)

Venue: No. 9 Meeting Room on 6th floor (6楼第九会议室)

Chairs: Prof. Xin Zhao, Associate Prof. Yanding Qin, Associate Prof. Mingzhu Sun

Keynote: Force-Sensing Robotic Micromanipulation Systems

Invited Speaker: Dr Qingsong Xu, University of Macau, China

FrC4-1 A Cell Manipulation Method Based on Stagnation Point of Swirl

Zhiming Ou, Qin Zhang, Hao Yang

FrC4-2 Experimental study of the behavior of muscle cells on projection micro-stereolithography printed micro-structures

Qian Gao, Qinyi Wang, Didi Li, Weiqi Ge, Xue Meng, Guoqing Jin, Haiyi Liang, Xifu Shang, Runhuai Yang

FrC4-3 Automatic micropipette tip detection and focusing in industrial micro-imaging system

Xiaohui Cheng, Jiahong Xu, Xin Zhao, Mingzhu Sun

FrC4-4 Morphologic Reconstruction of 2D Cellular Micro-scaffold Based on Digital Holographic Feedback

Xin Li, Huaping Wang, Qing Shi, Juan Cui, Tao Sun, Hongpeng Qin, Qiang Huang, Toshio Fukuda

FrC5: Underwater acoustic and optical signal processing for environmental cognition

(25, 28, 252, 454)

Venue: No. 6 Meeting Room on 3rd floor (3 楼第六会议室)

Chairs: Prof. Qingwu Li, Prof. Xiufen Ye, Prof. Hongli Xu, Prof. Xinwei Wang, Asso. Prof. Lihong Wu, Asso. Prof.

Sanming Song

Keynote: Machine Vision for Robots and Aerial Vehicles

Invited Speaker: Prof Shengyong Chen, Tianjin University of Technology, China

FrC5-1 Numerical prediction of self-propulsion point of AUV with a discretized propeller and MFR method

Lihong Wu, Xisheng Feng, Xiannian Sun, Tongming Zhou

FrC5-2 Underwater Image Restoration based on Red Channel and Haze-Lines prior

Dabing Yu, Guanying Huo, Yan Liu, Yan, Jinxing Xu

FrC5-3 Improved Multi-Object Tracking Algorithm for Forward Looking Sonar Based on Rotation Estimation

Xiufen Ye, Xinglong Ma

FrC5-4 A Launch and Recovery System for Unmanned Surface Vehicle based on Floating Bracket

Junjie Chen, Yang Yang, Xingang Jiang, Xiaolong He, Shaorong Xie, Yan Peng, Dong Qu

FrC6: Signal processing and underwater bionic robots (36, 92, 382, 426, 447)

Venue: No. 7 Meeting Room on 3rd floor (3楼第七会议室)

Chair: Prof. Qiao Hu

Keynote: MRAC based Synchronization Strategy for Master-Slave Manipulators with Unknown Parameters

Invited Speaker: Prof Qingkai Han, Northeastern University, China

FrC6-1 Novel Spread Spectrum Based Underwater Acoustic Communication Technology for Low Signal-to-Noise Ratio Environments

Feng Zhou, Wenbo Zhang, Gang Qiao, Zongxin Sun, Bing Liu, Wenting Zheng, Liang Li

FrC6-2 Application of PMN-PT piezoelectric monocrystal in wideband transducer with composite rod matching layer

Feng-hua Tian, Jun Li, Yi-ming Liu, Zhuo Xu, Yun-chuan Yang

FrC6-3 Optimal Anti-Submarine Search Path for UUV via an Adaptive Mutation Genetic Algorithm

Wenjun Ding, Hui Cao, Hao Wu, Mao Zhaoyong

FrC6-4 An Improved Genetic Algorithm for Optimal Search Path of Unmanned Underwater Vehicles

Mao Zhaoyong, Liu Peiliang, Wenjun Ding, Guo Hui

FrC6-5 A review of Biomimetic Artificial Lateral Line Detection Technology for Unmanned Underwater Vehicles

Qiao Hu, Chang Wei, Yu Liu, Zhenyi Zhao

FrC7: Human biomechanics and human-centered robotics (63, 64, 210, 419, 502, 504)

Venue: Activity Room on 5th floor (5楼活动室)

Chairs: Prof. Lei Ren, Prof. Guowu Wei, Prof. Qining Wang, Prof. Zhihui Qian

FrC7-1 Capacitive Sensing Based Knee-Angle Continuous Estimation by BP Neural Networks

Dongfang Xu, Qining Wang

FrC7-2 Concept and Prototype Design of A Soft Knee Exoskeleton with Continuum Structure (SoftKEX)

Zhihao Zhou, Xiuhua Liu, Qining Wang

FrC7-3 An Improved Model to Estimate Muscle-tendon Mechanics and Energetics During Walking With a Passive Ankle Exoskeleton

Nianfeng Wang, Yihong Zhong, Xianmin Zhang

FrC7-4 Design and Development of a Linkage-Tendon Hybrid Driven Anthropomorphic Robotic Hand

Haosen Yang, Guowu Wei, Lei Ren

FrC7-5 Predict Afferent Tactile Neural Signal for Artificial Nerve Based on Finite Element Human Hand Model

Yuyang Wei, Lei Ren, Guowu Wei

FrC7-6 Screw Displacement and Its Application to the In Vivo Identification of Finger Joint Axes

Yiming Zhu, Zirong Luo, Guowu Wei, Lei Ren

FrC8: Intelligent robots for environment detection or fine manipulation (178, 194, 280, 341, 344, 372)

Venue: No. 2 Meeting Room on 3rd floor (3 楼第二会议室)

Chairs: Dr. Wenfu Xu, Dr. Han Yuan

FrC8-1 Design and Integration of a Reconfiguration Robot

Jun Jiang, Lunfei Liang, Bo Yuan, Houde Liu, Bin Liang

FrC8-2 The longitudinal stability of FWMAVs considering the oscillation of body in forward flight

Dong Xue, Bifeng Song, Wenping Song, Wenqing Yang, Wenfu Xu

FrC8-3 Design and Control of a Small Intelligent Camera Stabilizer for a Flapping-wing Robotic Bird

Xu Liang, Erzhen Pan, Xu Hui, Juntao Liu, Yuanpeng Wang, Xiaokun Hu, Wenfu Xu

FrC8-4 Movement-Mode-Switching Mechanism for a Hybrid Wheel/legged Mobile Robot

Xiaolin Guo, Yufeng Su, Han Yuan

FrC8-5 Two Experimental Methods to Test the Aerodynamic Performance of HITHawk

Erzhen Pan, Hui Xu, Juntao Liu, Xu Liang, Yuanpeng Wang, Xiaokun Hu, Wenfu Xu

FrC8-6 Tension Optimization of A Cable-DrivenCoupling Manipulator Based on RobotDynamics with Cable Elasticity

Yanan Li, Ying Li, Deshan Meng, Liu Yu, Xueqian Wang, Bin Liang

Oral Sessions & Invited Talks at ICIRA 2019

(August 10th Saturday, 11:00-12:30)

SaA1: Field robots(147, 156, 223, 431)

Venue: Longfeng Hall A on 2nd floor (2楼隆奉A厅)

Chairs: Prof. Liang Ding, Prof. Ming Yue, Prof. Haibo Gao, Dr. Weihua Li

Keynote: Automated Pipeline Inspection with Field Robots

Invited Speaker: Dr Zheng Liu, University of British Columbia (Okanagan Campus), Canada

SaA1-1 An improved artificial potential field method for Path planning of mobile robot with subgoal adaptive selection

Zenan Lin, Ming Yue, Xiangmin Wu, Haoyu Tian

SaA1-2 Trajectory Planning for Digital Camouflage Spray Painting Robot Based on Projection Method

Zhang Xutang, Shi Wen, Wang Bohao, Li Jianming, Zhang Ling

SaA1-3 Basic research on wireless remote control rabbit animal robot movement

Yong Peng, Zilin Wang, Qian Zhang, Shaohua Du, Yang Zhao, Luonan Yang, Jianing Liu, Yawei Cheng, Aidi Wang, Yingjie Liu

SaA1-4 Analysis and Optimization of the Drive System of the Mobile Robot Arm in Unmanned Mining Working Face

Lijuan Zhao, Zuen Shang

SaA2: Man-machine interactions (189, 266, 395, 467)

Venue: Longfeng Hall B on 2nd floor (2楼隆奉B厅)

Chair: Dr. Tong Cui

Keynote: Robot autonomous operation based on physical relationship and functional reasoning in collaborative scenarios

Invited Speaker: Prof Xuguang Lan, Xi'an Jiaotong University, China

SaA2-1 A study of real-time EEG-feedback on attention combined with virtual reality

Yue Wang, Xiaotong Shen, Haowen Liu, Tiantong Zhou, Sari Merilampi, Ling Zou

SaA2-2 Continuous estimation of grasp kinematics with real-time surface EMG decomposition

Chen Chen, Shihan Ma, Xinjun Sheng, Xiangyang Zhu

SaA2-3 Intelligent Robot Arm: Vision-based Dynamic Measurement System for Industrial Applications

Lei Chen, Haiwei Yang, Pei Liu

SaA2-4 Research on Autonomous Face Recognition System for Spatial Human-robotic Interaction based on Deep Learning

Ming Liu, Na Dong, Qimeng Tan, Bixi Yan, Jingyi Zhao

SaA3: Navigation/Localization (96, 293, 455)

Venue: No. 8 Meeting Room on 5th floor (5楼第八会议室)

Chair: Dr. Xin Zhang

Keynote: Some Insights into the Fundamental Structure of SLAM Problems

Invited Speaker: Dr Shoudong Huang, University of Technology Sydney,

Australia

SaA3-1 Stereo Visual SLAM Using Bag of Point and Line Word Pairs

Wei Zhao, Kun Qian, Zhewen Ma, Xudong Ma, Hai Yu

SaA3-2 A Separate Data Structure For Online Multi-hypothesis Topological Mapping

Changyang Gong, Gang Chen, Wei Dong, Xinjun Sheng, Xiangyang Zhu

SaA3-3 Keyframe-based dynamic elimination SLAM system using YOLO detection

Gumin Jin, Xingjun Zhong, Shaoqing Fang, Deng Xiangyu, Jianxun Li

SaA4: Nonlinear systems and control (82, 146, 343, 480)

Venue: No. 9 Meeting Room on 6th floor (6楼第九会议室)

Chair: Dr. Yiming Jiang

Keynote: Employing Nonlinear Benefits in Engineering: Theory, Methods, and Applications

Invited Speaker: Dr Xingjian Jing, The Hong Kong Polytechnic University, China

SaA4-1 Controller Design by Using Simultaneous Perturbation Stochastic Approximation with Changeable Sliding Window

Qing Lu, Zhou Jun

SaA4-2 Robust Adaptive Force Tracking Impedance Control for Robotic Capturing of Unknown Objects

Guotao Li, huang hailin, Bing Li

SaA4-3 Research on Control Algorithms of Underactuated Gymnastic Robot's Leaping Between Horizontal Bar

Wenkang Lian, Ying Li, Liu Yu, Yan Zhang, Yong Liu

SaA4-4 Nonlinear Dynamic Analysis of Inclined Impact oscillator with a Harmonically External Excitation

Mei Wu, Ming Hu

SaA5: Human-robot interaction (153, 244, 475, 498)

Venue: No. 6 Meeting Room on 3rd floor (3楼第六会议室)

Chairs: Prof. Min Jiang, Dr. Qingyang Hong, Dr. Minghui Shi, Dr. Fei Chao, Dr. Jian Fu

Keynote: Regional Feedback Control – A New Approach for Robotic Manipulation in Task Space

Invited Speaker: Dr Xiang Li, The Chinese University of Hong Kong, China

SaA5-1 Language and Robotics: Complex Sentence Understanding

Seng Beng Ho, Zhaoxia Wang

SaA5-2 Dynamic Motion Planning Algorithm in Human-Robot Collision Avoidance

Lei Zhu, Zijing Chi, Fan Zhou, Zhuang Chungang

SaA5-3 Landmark-Based Virtual Path Estimation for Assisted UAV FPV Tele-Operation with Augmented Reality

Santiago Grijalva, Wilbert G. Aguilar

SaA5-4 Concurrent Probabilistic Motion Primitives for Obstacle Avoidance and Human-Robot Collaboration

Jian Fu, Wang ChaoQi, Jinyu Du, Fan Luo

SaA6: Piezoelectric actuators and micro-nano

manipulations (119, 214, 321, 326, 327, 507)

Venue: No. 7 Meeting Room on 3rd floor (3 楼第七会议室)

Chairs: Prof. Yingxiang Liu, Prof. Long Cheng, Prof. Xiaolong Lu, Prof. Bowen Zhong

Keynote: Advanced Control for Piezoelectric Positioners

Invited Speaker: Prof Xinkai Chen, Shibaura Institute of Technology, Japan

SaA6-1 Finite Element Analyses of Working Principle of the Ultrasonic Needle-Droplet-Substrate System for Multiple-Function Manipulation

Xiaomin Qi, Qiang Tang, Pengzhan Liu, Junhui Hu

SaA6-2 A Composite Controller for Piezoelectric Actuators based on Action Dependent Dual Heuristic Programming and Model Predictive Control

Shijie Qin, Long Cheng

SaA6-3 Regenerative Chatter Control with Piezoelectric Actuator for Micro-structure Surface Turning

Yang Wang, Lue Zhang, Tao Chen, Lining Sun

SaA6-4 Control and Testing of a Serial-Parallel XYZ Precision Positioner with a Discrete-Time Sliding Model Controller

Yanling Tian, Yue Ma, Fujun Wang, Kangkang Lu, Xiaolu Zhao, Mingxuan Yang, Dawei Zhang

SaA6-5 Modeling and Testing of a Novel Decoupled XY Nano-positioning Stage

Fujun Wang, Xiaolu Zhao, Huo Zhichen, Yanling Tian, Yue Ma, Dawei Zhang

SaA6-6 Effect of damping factor variation on eigenfrequency drift for ultrasonic motors

Dawei An, Qingshuang Ning, Weiqing Huang, Haodong Xue, Jianhui Zhang

SaA7: Teleoperation robot (35, 97, 99, 152, 296, 390)

Venue: Activity Room on 5th floor (5 楼活动室)

Chairs: Prof. Aiguo Song, Prof. Pengwen Xiong

SaA7-1 A control system framework model for cloud robots based on service-oriented architecture

Kui Qian, Yiting Liu, Aiguo Song, Jialu Li

SaA7-2 WSMR dynamics based DWA for leader-follower formation control

Yun Ling, Jian Wu, Zhenxing Zhang, Changcheng Wu

SaA7-3 Adaptive Position and Force Tracking Control in Teleoperation System with Time-varying Delays

Haochen Zhang, Aiguo Song, Huijun Li

SaA7-4 Designer of A Multi-DOF Adaptive Finger for Prosthetic Hand

Changcheng Wu, Qingqing Cao, Yuchao Yan, Fei Fei, Dehua Yang, Baoguo Xu, Hong Zeng, Aiguo Song

SaA7-5 A Neural Network Based Method for Judging the Rationality of Litigation Request

Huifang Cheng, cui tong, Feng Ding, Sheng Wan

SaA7-6 Design of a Wireless Six-axis Wrist Force Sensor for Teleoperation Robots

Wanglong Chen, Shuyan Yang, Quan Hu, Aiguo Song

SaA8: Fault detection, testing and diagnosis (1, 3, 103, 304)

Venue: No. 2 Meeting Room on 3rd floor (3 楼第二会议室)

Chair: Dr. Zhaojie Ju

SaA8-1 KPCA-based Visual Fault Diagnosis for Nonlinear Industrial Process

Oral Sessions & Invited Talks at ICIRA 2019

(August 10th Saturday, 15:00-16:30)

SaB1: Robot intelligence, learning and linguistics (168, 233, 241, 446)

Venue: No. 8 Meeting Room on 5th floor (5楼第八会议室)

Chair: Prof. Jian Fu

Keynote: From Automation to Learned Autonomy – A New Era for Intelligent Robots

Invited Speaker: Dr Zhibin Li, University of Edinburgh, UK

SaB1-1 Towards End-to-End Speech Recognition with Deep Multipath Convolutional Neural Networks

Wei Zhang, Minghao Zhai, Zilong Huang, Chen Liu, Wei Li, Yi Cao

SaB1-2 Robot Intelligent Trajectory Planning based on PCM guided Reinforcement Learning

Teng Xiang, Jian Fu, Cong Li, Zhaojie Ju

SaB1-3 Fast Robot Motor Skill Acquisition Based on Bayesian inspired Policy Improvement

Jian Fu, Shen Siyuan, Ce Cao

SaB1-4 Control of Nameplate Pasting Robot for Sand Mold Based on Deep Reinforcement Learning

Tuo Guiben, Li Te, Haibo Qin, Bin H, Liu Kuo, Wang Yongqing

SaB2: Robot legged locomotion (124, 281, 294, 316)

Venue: No. 9 Meeting Room on 6th floor (6楼第九会议室)

Chair: Dr. Yuwang Liu

Keynote: Locomotion of Beetles

Invited Speaker: Prof Si-Qin Ge, Institute of Zoology, Chinese Academy of Sciences, China

SaB2-1 SLIP Model-based Foot-to-Ground Contact Sensation via Kalman Filter for Miniaturized Quadruped Robots

Junjie Yang, Hao Sun, Dongping Wu, Xiaodong Chen, Changhong Wang

SaB2-2 Stability Analysis and Fixed Radius Turning Planning of Hexapod Robot

Dajiang Yu, Yongqin Chen

SaB2-3 The Mechanical Design and Torque Control for the Ankle Exoskeleton During Human Walking

Handong Xu, Yibing Li, Biwei Tang, Xiang Kui

SaB2-4 Stable 3D Biped Walking Control with Speed Regulation Based on Generalized Virtual Constraints

Jianfei Li, wang yaobing, Tao Xiao, Dawei Zhang

SaB3: Compliant mechanisms (89, 114, 139, 205, 260, 386)

Venue: No. 6 Meeting Room on 3rd floor (3楼第六会议室)

Chairs: Dr. Chi Zhang, Dr. Haiyue Zhu, Dr. Hui Tang, Dr. Benliang Zhu

Keynote: Our Recent Progress in Design of Compliant Mechanisms

Invited Speaker: Dr Guangbo Hao, University College Cork, Ireland

SaB3-1 A Generalized Mathematical Model for the Bridge-type and Lever-type Mechanism

Fangxin Chen, Jingnan Cai, Wei Dong, Zhijiang Du

SaB3-2 A novel giant magnetostrictive driven-vibration isolation stage based on compliant mechanism

Xiaoqing Sun, Jun Hu, Jiuru Lu, Zhilei Wang

SaB3-3 Topological synthesis of compliant mechanisms using a level set-based robust formulation

Benliang Zhu, Mohui Jin, Xianmin Zhang, Hongchuan Zhang

SaB3-4 Flexure-Based Variable Stiffness Gripper for Large-Scale Grasping Force Regulation with Vision

Zhu Haiyue, Li Xiong, Chen Wenjie, Chi Zhang

SaB3-5 Kinetostatic modeling of redundantly actuated planar compliant parallel mechanism

Miao Yang, Hongtao Yu, Xiaolu Huang, Chi Zhang, Guilin Yang, Zaojun Fang

SaB3-6 A Novel Flexure Deflection Device with Damping Function Towards Laser Reflector of 3D Lithography

Guixin Zhang, Tang Hui, Xun Chen, Xiaohui Guo, Jiedong Li, Haoyu Pan, Shuo Li

SaB4: Computer integrated manufacturing

(7, 10, 11, 107, 291)

Venue: No. 7 Meeting Room on 3rd floor (3楼第七会议室)

Chair: Dr. Xin Zhang

Keynote: Design and Fabrication of Origami Robots

Invited Speaker: Dr Ketao Zhang, Queen Mary University of London, UK

SaB4-1 Development of workshop management system for assembly production process

Pengfei Zeng, Yuyu Hao, Changwu Wu, Chunjing Shi, Yongping Hao

SaB4-2 Dynamic Scheduling of Dual-Resource Constrained Blocking Job Shop

Ze Tao, Xiaoxia Liu

SaB4-3 Study on No-wait Flexible Flow Shop Scheduling with Multi-Objective

Ze Tao, Xiaoxia Liu

SaB4-4 Dynamic Behavior Analysis and Multi-sensor Modal Information Fusion for Robotic Milling System

Daxian Hao, Wei Wang, Gang Zhang, Qilong Wang, Chao Yun

SaB4-5 Design of screw fastening tool based on SEA

Liming Tan, Cheng Sun, Muye Pang, Xiang Kui, Biwei Tang

SaB5: Collective and social robots (37, 441, 483, 515)

Venue: Activity Room on 5th floor (5楼活动室)

Chair: Dr. Disi Chen

Keynote: Wearable Series-Parallel-Reconfigurable Supernumerary Robotic Limb

Invited Speaker: Prof Yanhe Zhu, Harbin Institute of Technology, China

SaB5-1 Promoting Constructive Interaction and Moral Behaviors using Adaptive Empathetic Learning

Jize Chen, Yanning Zuo, Dali Zhang, Zhenshen Qu, Changhong Wang

SaB5-2 A Fast Visual Feature Matching Algorithm in Multi-Robot Visual SLAM

Nian Liu, Mingzhu Wei, Xiaomei Xie, Mechali Omar, Xin Chen, Weihua Wu, Peng Yan, Limei Xu

SaB5-3 Mechanical Design and Kinematic Control of a Humanoid Robot Face

Yu Qiu, Chongming Xu, Manjia Su, Hongkai Chen, Yisheng Guan, Haifei Zhu

SaB5-4 LTF Robot: Binocular Robot with Laser-point Tracking and Focusing Function

Shuang Song, Wenzeng Zhang

SaB6: Human-robot collaboration (57, 154, 229, 246, 289, 464)

Venue: No. 2 Meeting Room on 3rd floor (3楼第二会议室)

Chairs: Dr. Xuguang Lan, Dr. Fei Zhao

SaB6-1 Select and focus: action recognition with spatial-temporal attention

Wensong Chan, Zhiqiang Tian, Shuai Liu, Jing Ren, Xuguang Lan

SaB6-2 Real-time Grasp Type Recognition Using Leap Motion Controller

Yuanyuan Zou, Honghai Liu, Jilong Zhang

SaB6-3 Speaker-Independent Speech Emotion Recognition Based on CNN-BLSTM and Multiple SVMs

Zhentao Liu, Peng Xiao, Danyun Li, Man Hao

SaB6-4 On-Line Identification of Moment of Inertia for Permanent Magnet Synchronous Motor Based On Model Reference Adaptive System

Yujian Zhou, Jinhua She, Wangyong He, Danyun Li, Zhentao Liu, Yonghua Xiong

SaB6-5 Multi-Point Interaction Force Estimation for Robot Manipulators with Flexible Joints Using Joint Torque Sensors

Xing Liu, fei zhao, Baolin Liu, Xuesong Mei

SaB6-6 An Insulator Image Segmentation Method for Live Working Robot Platform

He Wen peng, Chen Xin, Xu Jian

Oral Sessions & Invited Talks at ICIRA 2019

(August 10th Saturday, 16:45-18:30)

SaC1: Development of high-performance joint drive for robots (201, 206, 209, 265, 278, 409)

Venue: No. 8 Meeting Room on 5th floor (5楼第八会议室)

Chairs: Prof. Ligang Yao, Prof. Jun Zhang

Keynote: Key Techniques on Intelligent Nursing Robot

Invited Speaker: Prof Bing Li, Harbin Institute of Technology Shenzhen Graduate School, China

SaC1-1 The multi-section design of a novel soft pneumatic robot arm with variable stiffness

Ligang Yao, Jingyi Li, Liu xiaodong, Hui Dong

SaC1-2 Nonlinear Finite Element Simulation and Analysis of Double Circular Arc Spiral Bevel Gear Nutation Drive

Yujing Su, Ligang Yao, Jun Zhang

SaC1-3 Design and analysis of gear profile of two-tooth difference swing-rod movable teeth transmission system

Rui Wei, Herong Jin, Yali Yi

SaC1-4 Transmission Error Simulation Analysis For RV Reducer With Orthogonal Experiment Method

Zhang Yinghui, He Weidong, Wang Xiaoyu, Luo Yuechong

SaC1-5 Design and finite element analysis of fiber-reinforced soft pneumatic actuator

Xianqi Xue, Ziheng Zhan, Yongwu Cai, Ligang Yao, Lu Zongxing

SaC1-6 Configuration Design and Simulation of Novel Petal Tooth Nutation Joint Drive for Robot

Linjie LI, Guangxin Wang, Lili Zhu, Weidong He

SaC2: Mobile robots and intelligent autonomous systems(115, 263, 308, 333, 338, 444)

Venue: No. 9 Meeting Room on 6th floor (6楼第九会议室)

Chair: Dr. Rongchuan Sun

Keynote: Research and development of linkaged ground mobile robot

Invited Speaker: Prof Yan-an Yao, Beijing Jiaotong University, China

SaC2-1 A Small Envelope Gait Control Algorithm based on FTL Method for Snake-Like Pipe Robot

Wenjuan Du, Jian Wang, Guigang Zhang, Manxian Liu

SaC2-2 The Design of Inspection Robot Navigation Systems Based on Distributed Vision

Lei Wang, Hua Zhu, Peng Li, chen chang, Shaoze You, Menggang Li, Zheng Zhang

SaC2-3 Movement Analysis of Rotating-finger Cable Inspection Robot

Changlong Ye, Jingpeng Li, Suyang Yu, Guanglin Ding

SaC2-4 Autonomous Indoor Mobile Robot Exploration Based on Wavefront Algorithm

Chunhua Tang, Rongchuan Sun, Shumei Yu, Liang Chen, Jianying Zhen

SaC2-5 Multi-robot path planning for complete coverage with genetic algorithms

Rongchuan Sun, Chunhua Tang, Jianying Zhen, Yongzheng Zhou, Shumei Yu

SaC2-6 Design and Magnetic Force Analysis of Patrol Robot for Deep Shaft Rigid Cage Guide

Hongwei Tang, Chaoquan Tang, Gongbo Zhou, Xin Shu, Qiao Gao

SaC3: Continuum mechanisms and robots (116, 257, 349, 366, 384, 522)

Venue: No. 6 Meeting Room on 3rd floor (3楼第六会议室)

Chairs: Dr. Rongjie Kang, Prof. Ian Walker, Dr. David Branson

Keynote: Collaborative Robotics with Continuum and Compliance

Invited Speaker: Dr Hongliang Ren, National University of Singapore, Singapore

SaC3-1 A Soft Robotic Glove for Hand Rehabilitation using Pneumatic Actuators with Variable Stiffness

Yiquan Guo, Fengyu Xu, Yurong Song, Xudong Cao, Fanchang Meng

SaC3-2 Visual Servoing of Soft Robotic Arms by Binocular

Lizheng Feng, Xiaojiao Chen, Zheng Wang

SaC3-3 Design of a Teleoperated Rod-driven Continuum Robot

Yue Liu, Shupeng Zhao, Chenghao Yang, Lisha Chen, Rongjie Kang

SaC3-4 Aerodynamics of soft flapping wings of Caudipteryx

Yaser Saffar Talori, Jingshan Zhao

SaC3-5 A Finite Element Model and Performance Analysis of a Hybrid Continuum Robot

Dian Zhuang, Xinrui Wang, Cijing Sun, Rongjie Kang

SaC3-6 Design and experiment of a foldable pneumatic soft manipulator

Xiang Zhang, Zhuoqun Liu, Hongwei Liu, Lu Cao, Xiaoqian Chen, Yiyong Huang

SaC4: Robot mechanism and design (23, 162, 226, 383, 398, 520)

Venue: No. 7 Meeting Room on 3rd floor (3楼第七会议室)

Chair: Dr. Yuwang Liu

Keynote: Creative Design of Mechanisms of Robotic Equipment

Invited Speaker: Prof Huafeng Ding, China University of Geosciences (Wuhan), China

SaC4-1 Design and Experimental Analysis of a Planar Compliant Parallel Manipulator

Congcong Du, Genliang Chen, Zhuang Zhang, Liqing Tang, Hao Wang

SaC4-2 Dynamics Analysis of 3-CPaR&R1R2 Hybrid Mechanism with Joint Clearance

Junchen Liu, Minghao Zhai, Baoxing Wang, Miao Lin, Wei Li, Yi Cao

SaC4-3 Underactuated robot passability analysis and optimization

Lingyu Sun, Xiaoya Liu, Zhilong Li

SaC4-4 Design and Simulation of a Miniature Jumping Gliding Robot on Water Surface

Jihong Yan, Hongwei Yao, Kai Yang, Xin Zhang, Jie Zhao

SaC4-5 Towards Intelligent Maintenance of Thermal Power Plants: A Novel Robot for Checking Water Wall Tube

Jun Yang, Hongwei Wang, Jian Zhang, Xianming Zhou

SaC4-6 Configuration Change and Mobility Analysis of a novel metamorphic parallel mechanism constructed with (rA) joint

Pu Jia, Duanling Li, Jiazhou Li

SaC5: Visual and motional learning in robotics (169, 254, 377, 387, 393, 465, 508)

Venue: Activity Room on 5th floor (5 楼活动室)

Chairs: Dr. Hongbin Ma, Dr. Yanhong Liu

SaC5-1 A Grid-based Monte Carlo Localization with hierarchical free-form scan matching

Mei Wu, Hongbin Ma, Xinghong Zhang

SaC5-2 A Method to Deal With Recognition Deviation Based on Trajectory Estimation in Real-time Seam Tracking

Nianfeng Wang, Suifeng Yin, Kaifan Zhong, Xianmin Zhang

SaC5-3 3-D Dimension Measurement of Workpiece Based on Binocular Vision

Jiannan Wang, Hongbin Ma, Baokui Li

SaC5-4 Co-simulation of Omnidirectional Mobile Platform Based on Fuzzy Control

Wenchao Zuo, Hongbin Ma, Xin Wang, Cong Han, Zhuang Li

SaC5-5 Static Hand Gesture Recognition for Human Robot Interaction

Josiane Uwineza, Hongbin Ma, Baokui Li, Ying Jin

SaC5-6 Multi-sensor Based Human Balance Analysis

Haichuan Ren, Zongxiao Yue, Yanhong Liu

SaC5-7 Wrist motor function rehabilitation training and evaluation system based on human-computer interaction

Haichuan Ren, Qi Song, Yanhong Liu

SaC6: Robot vision and scene understanding (113, 128, 217, 224, 292, 438)

Venue: No. 2 Meeting Room on 3rd floor (3楼第二会议室)

Chairs: Prof. Shengyong Chen, Prof. Honghai Liu, Prof. Houxiang Zhang

SaC6-1 Semantic Situation Extraction from Satellite Image based on Neural Networks

Xutao Qu, Dongye Zhuang, Haibin Xie

SaC6-2 Efficient ConvNet for Surface Object Recognition

Wei Lin, Chen Quan, Xianzhi Qi, Bingli Wu, Xue Ke, Dezhao Yang, Yongzhi Wang, Jie Ma

SaC6-3 Deep Learning Based Fire Detection System for Surveillance Videos

Hao Wang, Zhiying Pan, Zhifei Zhang, HongZhang Song, ShaoBo Zhang, Jianhua Zhang

SaC6-4 3D Scanning and Multiple Point Cloud Registration with Active View Complementation for Panoramically Imaging Large-scale Plants

Dajing Gu, Kai Zhu, Yuechen Shao, Wei Wu, Liang GONG, Chengliang Liu

SaC6-5 Industrial Robot Sorting System for Municipal Solid Waste

ZhiFei Zhang, Hao Wang, HongZhang Song, ShaoBo Zhang, JianHua Zhang

SaC6-6 A Method Based on Data Fusion of Multiple Sensors to Evaluate Road Cleanliness

Xiang Yao, Wei Zhang, Wei Cui, Xu Zhang, Ying Wang, Jiale Xiong

Poster Sessions at ICIRA 2019

(August 8th Thursday, 13:00-15:00)

Poster Session 1 (P1) List of Paper IDs:

21, 52, 54, 59, 60, 70, 76, 84, 86, 111, 123, 129, 158, 161, 163, 170, 183, 216, 231, 243, 253, 276, 286, 317, 331, 342, 371, 389, 391, 424, 443, 477, 482, 497, 513, 516

Poster Session 2 (P2) List of Paper IDs:

24, 42, 72, 90, 93, 109, 127, 131, 137, 142, 155, 176, 177, 182, 185, 186, 191, 196, 197, 198, 204, 256, 279, 283, 284, 307, 318, 356, 365, 411, 442, 495, 496, 500, 518

Poster Sessions at ICIRA 2019

(August 8th Thursday, 15:00-17:00)

Poster Session 3 (P3) List of Paper IDs:

2, 6, 8, 20, 34, 91, 101, 132, 133, 135, 167, 172, 175, 193, 230, 235, 240, 274, 287, 288, 290, 299, 313, 330, 332, 361, 410, 414, 418, 425, 434, 445, 460, 461, 479, 484, 506

Poster Session 4 (P4) List of Paper IDs:

5, 40, 58, 75, 87, 98, 106, 130, 207, 212, 222, 239, 245, 250, 261, 277, 295, 302, 303, 305, 322, 324, 334, 335, 354, 357, 359, 373, 380, 394, 396, 402, 423, 429, 448, 457, 474, 521

Poster Session 1

Time: 13:00-15:00

Venue: Longfeng Hall on 2nd Floor (二楼隆奉厅)

Title	Authors
Robot Programming Language Based On VB Scripting for Robot Motion Control	Zheng li, Sheng Gao, Wei Zhang, Xiaoyuan Liu
Secrecy Energy efficiency maximization for UAV-aided communication systems	Meng Hua, Chunguo Li, Luxi Yang
Design and Analysis of Motor Control System for Drilling Fluid Continuous Wave Generator Based on Improved Active Disturbance Rejection Control and Hysteresis Current Control	Botao Zhou, Jiafeng Wu, Ning Han, Mwelango Martin
New rigid-soft coupling structure and its stiffness adjusting device	Liu Che, Mu Hengyang, Diansheng Chen, Min Wang
Co-simulation Based on ADAMS and Simulink for Direct Yaw Moment Control System of 4WD-EV	Yaping Wang, Liping Zhang, Sen Cao, Zheng Zhang
Specular Surface Measurement with Laser Plane Constraint to Reduce Erroneous Points	Huayang Li, Xu Zhang, Leilei Zhuang, Yilin Yang
A Cooperative Obstacle-avoidance Approach for Two-manipulator Based on A* Algorithm	Jinlong Zhao, Yongsheng Chao, Yiping Yuan
Research on Safety Control Method of Multi-rotor Unmanned Aerial Vehicle under Super-Strong Wind Field	Yongqiang Hou, Yuqing He, Wei Huang, Qianhan Wang, Hao Zhou
Path Planning of UAV-UGV Heterogeneous Robot System in Road Network	Mengqing Chen, Yang Chen, Zhihuan Chen, Yanhua Yang
Appearance-Based Gaze Tracking: A Brief Review	Jiaqi Jiang, Xiaolong Zhou, sixian chan, Shengyong Chen
Simulation Analysis of PID Closed-Loop Control of Current of SBW	Li Zhanfeng, Du Shuang
An FFT-based method for analysis, modeling and identification of kinematic error in harmonic drives	Shi Xiaoli, Yong Han, Jianhua Wu, Zhenhua Xiong
Improved CPG model based on Hopf oscillator for gait design of a new type of hexapod robot	Xiangyu Li, Hong Liu, Xuan Wu, Rui Li, Xiaojie Wang
Fault-tolerant Control of Robotic Manipulators with/without Output Constraints	Ting Lei, Ye He, Xiaoan Chen, Xue Zhao

A Path Planning Method under Constant Contact Force for Robotic Belt Grinding	Wang Tao, Huan Zhao, Qianlong Xie, Xiangfei Li, Han Ding
Adaptive Impedance Control for Robotic Polishing with an Intelligent Digital Compliant Grinder	Qianlong Xie, Huan Zhao, Tao Wang, Han Ding
Kinematic Analysis and Speed Control of 3SPS-1S Parallel Mechanism for End Actuator of Segment Erector	Lintao Wang, Ji Li, Lei Zhao
Viewpoint Planning of Robot Measurement System Based on V-REP Platform	Zhonghang Ma, Xu Zhang, Lin Zhang, Limin Zhu
Modeling and analysis of human lower limb in walking motion	Huan Zhao, Junyi Cao, Ruixue Wang
A Self-Calibration Method for Mobile Manipulator	Hangbo Zou, Yinghao Li, Sijun Zhu, Kanfeng Gu, Xinggang Zhang, Mingyang Zhao
Neural Networks-Based PID Precision Motion Control of a Piezo-Actuated Microinjector	Yizheng Yan, Qingsong Xu
Dynamics modeling of a 2-DOFs mechanism with rigid joint and flexible joint	YanLin Chen, Baizhe Song, Xianmin Zhang, Yanjiang Huang
A HoloLens Based Augmented Reality Navigation System for Minimally Invasive Total Knee Arthroplasty	Li Wang, Zewen Sun, Xiaohui Zhang, Zhen Sun, Junchen Wang
A methodology for multi-goal trajectory planning in welding	Nianfeng Wang, Yaoqiang He, Xianmin Zhang
Automatic programming for dual robots to grinding intersecting curve	Shibo Han, Xingwei Zhao, Qi Fan, Bo Tao
Real-Time Human-Posture Recognition for Human-Drone Interaction using Monocular Vision	Chenglin Cai, Shaowu Yang, Peifeng Yan, Jinkai Tian, Linlin Du, Xuejun Yang
Research on motion evolution of soft robot based on VoxCAD	Yueqin Gu, Xuecheng Zhang, Qiuxuan Wu, Yancheng Li, botao zhang, Farong Gao, Yanbin Luo
Research on Measurement and Deformation of Flexible Wing Flapping Parameters	Jie Yuan, Chao Wang, Peng Xie, Chaoying Zhou
Haptic Joystick Impedance Control with Gravity Compensation	Yong-Jin Ock, Zhan-Ming Gu, Jong-Woo An, Jang-Myung Lee
DOREP: an educational experiment platform for robot control based on MATLAB and the real-time controller	Liu Guanghui, Han Bing, Li Qingxin, Zhang Hualiang
Force/Motion Hybrid Control of Three Link Constrained Manipulator Using Sliding Mode	Sheng Gao, Wei Zhang, Weiguo Kong, Hucun Ren, Bopi Jin
HSVM-based human activity recognition using smartphones	Santiago Grijalva, Wilbert G. Aguilar, Gonzalo Cueva, José David Ramírez Rojas
R-3RPS robot-based mathematical modeling for	Cristhian Guerrón, Wilbert G. Aguilar, Rolando

a military flight simulator	Reyes, Nicolás Pinto, Santiago Chamorro, Manolo Paredes
Toward human-in-the-loop PID control based on CACLA reinforcement learning	Junpei Zhong, Yanan Li
Adaptive Hybrid Impedance Control Algorithm Based on Subsystem Dynamics Model for Robot Polishing	Zihao Luo, Jianfei Li, Jie Bai, Wang Yaobing, Li Liu
Trajectory Planning based on Optimal Control and Exact Derivatives	Xiaodong Zhang, Ling Tu, Jiafeng Wu, Shurong Li

Poster Session 2

Time:13:00-15:00

Venue: Longfeng Hall on 2nd Floor (二楼隆奉厅)

Title	Authors
The UAV path planning method based on lidar	Lanxiang Zheng, Ping Zhang, Jia Tan, Mingxuan Chen
An improved arti cial potential eld method for mobile robots using environmental information	Haiyi Kong, Chenguang Yang, Zhaojie Ju, Jinguo Liu
A Flexure-based XY Precision Positioning Stage with Integrated Displacement PVDF Sensor	Mingxiang Ling
A novel method for finger vein segmentation	Zeng JunYing, Wang Fan, Chuanbo Qin, Gan Junying, Zhai Yikui, Zhu Boyuan
An Underwater Robot Positioning Method based on EM-ELF Signals	Guan Wang, Huanyu Ding, Hongwei Xia, Changhong Wang
Video-Guided Sound Source Separation	Junfeng Zhou, Feng Wang, Di Guo, Huaping Liu, Fuchun Sun
In-hand manipulation for active object recognition	Xiang Dou, Xinying Xu, Huaping Liu
Designing Bionic Path Robots to Minimize the Metabolic Cost of Human Movement	Jing Fang, Jianping Yuan, Qi Li
CSLAM and GPS based Navigation for Multi-UAV Cooperative Transportation System	Hang Yu, Fan Zhang, Panfeng Huang
Underwater image target detection with cascade classifier and image preprocessing method	Lingcai Zeng, Bing Sun, Wei Zhang, Daqi Zhu
Research on HDD-UJ Robot Joint Structure Design and Motion Regulation Strategy	Zhongtao Li, Tianhong Luo
Design and Modeling of a Continuous Soft Robot	Wenbiao Wang, Hailiang Meng, Guanjun Bao
A New Concept of UAV Recovering System	Jun Jiang, Houde Liu, Bo Yuan, Xueqian Wang, Bin Liang
Autopilot System of Remotely Operated Vehicle Based on Ardupilot	Zongtong Luo, Xianbo Xiang, Qin Zhang
Optimized SOM Algorithm to Solve Problem of Invalid Task Allocation	Yun Qu, Daqi Zhu, mingzhi chen
Multiple underwater target search path planning based on GBNN	Tingting Zhu, Mingzhong Yan, ZhenZhong Chu
Robust Controller Design for Non-Linear System	Saad jamshed, Muhammad Hamza Khan, Wang Jie,

with Perturbation Compensation	Min Cheol Lee
Trajectory Tracking Control of a 7-Axis Robot Arm Using SMCSPO	Wang Jie, Saad jamshed, Dong Jun Kim, Bao Yulong, Min Cheol Lee
Adaptive whole-arm grasping approach of tumbling space debris by two coordinated hyper-redundant manipulators	Wenya Wan, Chong Sun, Jianping Yuan, Xianghao Hou, Yufei Guo, Yinong O-yang, Qixin Li, Liran Zhao, Hao Shi, Dawei Han
Design of Control System and Human-Robot-Interaction System of Teleoperation Underwater Robot	Pengcheng Xu, Qingjun Zeng, Guangyi Zhang, Chunlei Zhu, Zhiyu Zhu
A Survey of Underwater Acoustic SLAM System	Min Jiang, Sanming Song, Yiping Li, Wenming Jin, Jian Liu, Xisheng Feng
Haptic Feedback with a Reservoir Computing-Based Recurrent Neural Network for Multiple Terrain Classification of a Walking Robot	Pongsiri Borijindakul, Noparit Jinuntuya, Poramate Manoonpong
Detecting Untraversable Regions for Navigating Mobile Robot on Pedestrian Lanes	Jiatong Bao, Xiaomei Yao, Hongru Tang, Aiguo Song
A Prediction Method of Contact Force in Precise Teleoperation with Time Delay	Pengwen Xiong, Aiguo Song, Jianqing Li, Yao Lei
Numerical Simulation of Collision between an Oil Tanker and Ice	Aifeng Zhang, Lihong Wu, Lanxuan Liu, Xiong Chen, Xinyu Zhao
Threshold-dependent joint bilateral filter algorithm for enhancing 3D gated range-intensity correlation imaging	Yuqing Yang, Xinwei Wang, Liang Sun, Jianan Chen, Han Dong, Minmin Wang, Shaomeng Wang, Yan Zhou
Indoor navigation system using the Fetch robot	Huishen Zhu, Brenton Leighton, Yongbo Chen, Xijun Ke, Songtao Liu, Liang Zhao
Design of Morphing Wing Leading Edge with Compliant Mechanism	Ziang Zhang, Wenjie Ge, Yaqing Zhang, Rongyi Zhou, Haijun Dong, Yonghong Zhang
Planetary Rover Path Planning Based on Improved A* Algorithm	Weihuai Wu, Xiao mei Xie, Mingzhu Wei, Xin Chen, Nian Liu, Peng Yan, Omar Mechali, Limei Xu
Design and Analysis of a Planar 3-DOF Large Range Compliant Mechanism with Leaf-type Flexure	Bao Yang, Chi Zhang, Hongtao Yu, Miao Yang, Guilin Yang, Silu Chen
Design and Simulation of a Push Recovery Strategy for Biped Robot	Dandan Hu, Ruoqiao Guan, Peiran Yu
Robot Intelligent Trajectory Planning based on PCM guided Reinforcement Learning	Jian Fu, Ce cao, Jinyu Du, Siyuan Shen
Monocular Visual-Inertial SLAM with Camera-IMU Extrinsic Automatic Calibration and Online Estimation	Linhao Pan, Fuqing Tian, Wenjian Ying, Bo She
An Online Motion Planning Approach of Mobile Robots in Distinctive Homotopic Classes by a	Xiaoyuan Zhang, Biao Zhang, Chenkun Qi, Zhousu Li, Huayang Li

Sparse Roadmap	
Close-range Angles-only Relative Navigation of Multi-Agent Cluster for On-orbit Servicing Mission	Baichun Gong, Sha Wang, Shuang Li, Lili Zheng

Poster Session 3

Time:15:00-17:00

Venue: Longfeng Hall on 2nd Floor (二楼隆奉厅)

Title	Authors
Human-AGV Interaction: Real-time Gesture Detection Using Deep Learning	Jiliang Zhang, Li Peng, Wei Feng, Zhaojie Ju, Honghai Liu
Coverage Path Planning for Complex Structures Inspection Using Unmanned Aerial Vehicle (UAV)	Randa Almadhoun, Tarek Taha, Jorge Dias, Lakmal Seneviratne, Yahya Zweiri
Infrared and Visible Image Fusion: A Region-based Deep Learning Method	Chunyu Xie, Xinde Li
Development of Four Rotor Fire Extinguishing System for Synchronized Monitoring of Air and Ground for Fire Fighting	Shihan Liu, Lifu Hu
Active Affordance Exploration for Robot Grasping	Huaping Liu, Yuan Yuan, Yuhong Deng, Xiaofeng Gao, Yixuan Wei, Kai Lu, Bin Fang, Di Guo, Fuchun Sun
Fault diagnosis and prediction method of SPC for engine block based on LSTM neural network	Chunying Jiang, Ping Jin, Yuxiang Kang, Changlong Ye
Real Time Object Detection Based on Deep Neural Network	Tarek Teama, Hongbin Ma, Ali Maher, Mohamed Kassab
Image Deblurring Based on Fuzzy Kernel Estimation in HSV Color Space	aidi zhao, Jianhua Zhang, Xiaoling Lv, minglu zhang
A Fast and Robust Template Matching Method with Rotated Gradient Features and Image Pyramid	Yanjiao Si, Wenchao Wang, Zelong Zheng, Xu Zhang
Multi-Vehicle Detection and Tracking Based on Kalman Filter and Data Association	Lie Guo, Ge Pingshu, Danni He, Dongxing Wang
Multi-scale Feature Fusion Single Shot Object Detector Based on DenseNet	Minghao Zhai, Junchen Liu, Wei Zhang, Chen Liu, Wei Li, Yi Cao
Semi-direct Tracking and Mapping with RGB-D Camera	Ke Liu, Xiaolin Gu, Min Yang, Yi Zhang, Shun Guan
Towards Deep Learning based Robot Automatic Choreography System	Ruiqi Wu, Wenyao Peng, Changle Zhou, Fei Chao, Longzhi Yang, Chih-Min Lin, Changjing Shang
Trajectory Tracking Control of Wheeled Mobile Robots Using Backstepping	Sunxin Wang, Xuefeng Bao, Shaohua Zhang, Shen Gaopan
Surface Defect Inspection Under a Small Training Set Condition	Wenyong Yu, Yang Zhang, Hui Shi

A Collision-free Path Planning Method using Direct Behavior Cloning	Zijing Chi, Lei Zhu, Fan Zhou, Zhuang Chungang
3D Pose Estimation of Robot Arm with RGB Images Based on Deep Learning	Fan Zhou, Zijing Chi, Zhuang Chungang, Han Ding
Straightness error assessment of linear axis of CNC machine tool based on data-drive method	Yang Hui, Xuesong Mei, Gedong Jiang, Fei Zhao
Two-person Interaction Recognition Based on Video Sparse Representation and Improved Spatio-Temporal Feature	Jiangtao Cao, Peiyao Wang, Shuqi Chen, Xiaofei Ji
Human Interaction Recognition based on the Co-occurring Visual Matrix Sequence	Xiaofei Ji, Linlin Qin, Xinmeng Zuo
Mobile Robot Autonomous Navigation and Dynamic Environmental Adaptation in Large-Scale Outdoor Scenes	Qifeng Yang, Daokui Qu, Fang Xu
A stereo matching method combining feature and area information for power line inspection	Jing Wang, Dongsheng Zhang, Xinghan Sun, Xinrong Zhang
Image Stitching Based on Improved SURF Algorithm	Jinxian Qi, Gongfa Li, Zhaojie Ju, Disi Chen, Du Jiang, Bo Tao, Guozhang Jiang, Ying Sun
Neural Network based Electronics Segmentation	Senwei Ma, Xiaoyuan Fan, lei wang, Jun Cheng, Chengjun Xu
Multi-scale densely connected dehazing network	Tong Cui, Zhen Zhang, Yandong Tang, Jiandong Tian
Automatic analysis of calibration board image orientation for online hand-eye calibration	Shan Du, Jianhua Zhang, Xiaoling Lv
Residual Attention Regression for 3D Hand Pose Estimation	Jing Li, Long Zhang, Zhaojie Ju
Fixation Based Object Recognition in Autism Clinic Setting	Sheng Sun, Shuangmei Li, Wenbo Liu, Xiaobing Zou, Ming Li
View Invariant Human Action Recognition Using 3D Geometric Features	Qingsong Zhao, Shijie Sun, Xiaopeng Ji, lei wang, jun cheng
Visual-based Crack Detection and Skeleton Extraction of Cement Surface	Du Jiang, Gongfa Li, Ying Sun, Jianyi Kong, Bo Tao, Dalin Zhou, Disi Chen, Zhaojie Ju
Visual Servoing Control Based on Reconstructed 3D Features	Degang Xu, Lei Zhou, Yifan Lei, Tiantian Shen
A Coarse Registration Algorithm between 3D Point Cloud and CAD Model of Non-cooperative Object for Space Manipulator	Qimeng Tan, Delun Li, Congcong Bao, Ming Chen, Yun Zhang
Improved Driving Stability with Series Elastic Actuator and Velocity Controller	Jinuk Bang, Haneul Yoon, Jihyeon Kim, Jangmyung Lee
Non-concentric Circular Texture Removal for Workpiece Defect Detection	Shujia Qin, Di Guo, Heping Chen, Ning Xi
Monocular vision-based dynamic moving	Wilbert G. Aguilar, Leandro Alvarez, Santiago

obstacles detection and avoidance	Grijalva, Israel Rojas
Landmark based eye ratio estimation for driver fatigue detection	Ramiro Galindo, Wilbert G. Aguilar, Rolando Reyes
Path planning based navigation using LIDAR for an Ackerman Unmanned Ground Vehicle	Wilbert G. Aguilar, David Sandoval, Alex Limaico, Martin Villegas-Pico, Israel Asimbaya

Poster Session 4

Time:15:00-17:00

Venue: Longfeng Hall on 2nd Floor (二楼隆奉厅)

Title	Authors
Dexterity-based dimension optimization of Muti-Dof robotic manipulator	Yang Jing, Ming Hu, Jin Lingyan, Zhao Deming
Parameter Optimization of eel robot based on NSGA-II algorithm	Anfan Zhang, Shugen Ma, Bin Li, Minghui Wang, Jian Chang
Safety and waterproof design of multi-functional assisted bath robot	Yuan Fu, He Zhimin, Diansheng Chen
Experimental Research on Dynamic Characteristics of Truss Structure for Modular Space Deployable Truss Antenna	Dake Tian, Rongqiang Liu, Lu Jin, Hongwei Guo, Zongquan Deng
The Study of Wheel Driving Torque Optimization of Mars Rover with Active Suspension in Obstacle Crossing	Ling Tang, Tao Liu, Shimin Wei, Yafang Liu
Workspace Simulation and Analysis of a Dual-arm Nursing Robot	Libo Zhang, Su Wang, Xingang Miao
Design and simulation of heavy load Wheeled mobile robot driving mechanism	Yang Zhang, Zhi-gang Xu, Song-kai Liu, Qing-yun Wang
Design and Recognition of Two-Dimensional Code for Mobile Robot Positioning	Wei Huang, Asihaer Maomin, Zhenguo Sun
The Design of 3-D Space Electromagnetic Control System for High-precision and Fast-response Control of Capsule Robot with 5-DOF	Li Song, Xiuping Yang, Hu Hang, Guanya Peng, Wenxuan Wei, Yuguo Dai, Lin Feng
Designing, Modeling and Testing of the Flexible Space Probe-Cone Docking and Refueling Mechanism	Longfei Huang, Zhi Li, Jianbin Huang, Wenlong Wang, Wen Li, Bo Meng, Yujia Pang, Xu Han, Zhimin Zhang
Large Contact Area Trajectory Planning Algorithm for Fuel Tank with Irregular Surfaces	Xing Fan, Haibo Xu, Wenyu Huang, Yufeng Lin
A General Kinematics Model for Trajectory Planning of Upper Limb Exoskeleton Robots	Qiaoling Meng, Qiaolian Xie, Zhipeng Deng, Hongliu Yu
Dynamics modeling method of module manipulator using Spatial Operator Algebra	Xiao Tao, Zhang Xiaodong, Xiong Minghua
A Modified Cartesian Space DMPs Model for Robot Motion Generation	Nailong Liu, Zhaoming Liu, Long Cui
Robot Brush-writing System of Chinese	Jie Li, Huasong Min, Haotian Zhou, Hongcheng Xu

Calligraphy Characters	
Robot Workspace Optimization and Deformation Compensation in Grinding	Xiaoteng Zhang, Bing Chen, Junde Qi, Niu Zhiyang
A Novel Hedgehog-inspired Pin-array Robot Hand with Multiple Magnetic Pins for Adaptive Grasping	Hang Yuan, Wenzeng Zhang
Underwater de-scattering range-gated imaging based on numerical fitting and frequency domain filtering	Minmin Wang, Xinwei Wang, Yuqing Yang, Liang Sun, Yan Zhou
Adaptive Threshold Processing of Secondary Electron Images in Scanning Electron Microscope	Weiguo Bian, Mingyu Wang, Zhan Yang
Design of Finger Exoskeleton Rehabilitation Robot using the Flexible Joint and the MYO Armband	Jianxi ZHANG, Jianbang Dai, Sheng CHEN, Guozheng Xu, Xiang Gao
Long-term Real-time Correlation Filter Tracker for Mobile Robot	Shaoze You, Hua Zhu, Menggang Li, Lei Wang, Chaoquan Tang
IMU-aided Ultra-Wideband Based Localization for Coal Mine Robots	Menggang Li, Hua Zhu, Shaoze You, Lei Wang, Z Hang Zheng, Chaoquan Tang
Kinematic analysis of a flexible planar 2- DOF parallel manipulator	Jiaqi Zhu, Bin Li, Haozhi Mu, Qi Li
Object Dimension Measurement Based on Mask R-CNN	Zuo Wei, Bin Zhang, Pei Liu
Research on Spatial Target Classification and Recognition Technology Based on Deep Learning	Yujia Pang, Zhi Li, Bo Meng, Zhimin Zhang, longfei huang, Jianbin Huang, Xu Han, Yin Wang, Xiaohui Zhu
Kinematics solution and workspace analysis of a seven(DOF) Redundant Manipulator	Cunfeng Wu, Juan Wu, Shizheng Zhang, Ting Miao, Guanchen Zong
Design of a Master-slave Composite Wall Climbing Robot System for Penstock Assembly Welding	Jiashe Zhu, Zhenguo Sun, Wei Huang, Qiang Chen
Dual-source fluid bending and side-swing compound multi-joint finger	Weiping Kong, Wenzeng Zhang
Dynamics Analysis of the Human-machine System of the Assistive Gait Training Robot	Tao Qin, Xin Meng, Jinxing Qiu, Dingjian Zhu, Jianwei Zhang
Design and Implementation of Hovering Flapping Wing Micro Air Vehicle	Jiaxiang Li, Chao Wang, Jing Liu, Peng Xie, Chaoying Zhou
Minimally invasive instrument joint design based on variable stiffness of transmission efficiency	Longkai Chen, Fan Zhang, Guohua Cui, Jing Sun, Minhua Zheng, Ruijun Pan
A Posture Planning Method in Clustered Synergy Sub-space for HIT/DLR Hand II	Li Jiang, Bingchen Liu, Shaowei Fan, Hong Liu

Design of Embedded Structure Variable Stiffness Pneumatic Actuator	Yiqing Li, Wen Zhou, Yan Cao, Feng Jia
An Efficient Turning Control Method Based on Coordinating Driving for an Underwater Snake-like Robot with a Propeller	Shan Li, Xian Guo, Junfang Zhou, Chao Ren, Shugen Ma
A Smooth Gait Planning Framework for Quadruped Robot Based on Virtual Model Control	Jian Tian, Chao Ma, Cheng Wei, Yang Zhao
An Adaptive Parameter Identification Algorithm for Post-capture of a Tumbling Target	jia xu, Yang Yang, Yan Peng, Xiaomao Li, Shuanghua Zheng, Jianxiang Cui
Continuous path planning for free-floating space manipulator based on Genetic algorithm	Long Zhang
Review of Research on the Chinese Space Station Robots	Wang Youyu, Daming Li, Chengwei Hu, Yaobing Wang, Zixin Tang, Nian Wang